CHAPTER 10

Eportfolio: A Multi-Dimensional Tool in Learning and Professional Practice for Life Long Learning

Shikha Raturi, Tamara Osborne-Nailatikau, Gurmeet Singh

The whole idea behind these ePortfolios is to give others a complete sense of what you're all about. Whether you're using an ePortfolio as a job-hunting tool or an assessment tool, you want the people who inspect it to come away with an entirely new understanding of who you are and what you're capable of accomplishing.

(Truer as cited in Villano, 2005)

The concept of documenting and providing evidence of learning has been in existence for a long time. The nature of documentation has evolved with time and availability of resources. With the developments in information communication technology, the documentation techniques have moved to a completely different level. What started as a portfolio of physical artefacts has now been replaced by a digital portfolio with virtual artefacts. This new documentation technique is driven by a clearly-defined need and results in multi-pronged outcomes. The learning opportunities afforded by ePortfolio make it an ideal tool for lifelong learning. Perhaps this is why education reformers consider portfolio as a pervasive innovation (Dung & Ha, 2019). This chapter will take the readers through the ePortfolio journey from the beginning to where we are now, with a focus on use of ePortfolio in higher education in Pacific Island Countries.

From Portfolio to ePortfolio

We begin with our focus on the documentation technique from the 1970s and 1980s, when the concept of portfolio was beginning to take shape in the USA. The idea of providing evidence for quality of teaching in the school system pushed the portfolio concept further. According to Dung and Ha (2019), Pat Belanoff and Peter Elbow first introduced portfolio assessment in lieu of final exams at Stony Brook University (New York) in 1983. The term portfolio is derived from two Latin words *portare* meaning 'carry' and *foglio* meaning 'sheet of paper'. Thus portfolio can be approximately equated to 'carrying sheets of papers to demonstrate evidence'.

According to the Paulson, Paulson and Meyer's (1991) definition,

a portfolio is, a purposeful collection of student work that exhibits the student's efforts, progress and achievements in one or more areas. The collection must include student participation in selecting contents, the criteria for selection, the criteria for judging merit and evidence of student self-reflection (p. 60).

In the context of higher education, the definition of portfolio as given by the Glossary of Education Reform⁸⁸ (18th Feb, 2016), is worth our attention:

⁸⁸ https://www.edglossary.org/portfolio/

A student portfolio is a compilation of academic work and other forms of educational evidence assembled for the purpose of (1) evaluating coursework quality, learning progress, and academic achievement; (2) determining whether students have met <u>learning standards</u> or other academic requirements for courses, grade-level promotion, and graduation; (3) helping students reflect on their academic goals and progress as learners; and (4) creating a lasting archive of academic work products, accomplishments, and other documentation.

We notice that the emphasis on portfolio usage was to demonstrate students' personal growth on their individual learning journeys. The developments in higher education, in particular the *Bologna* process, has contributed to improving the quality of learning and teaching in higher education globally and emphasises lifelong learning as a common graduate outcome (Biggs & Tang, 2014). This requires individuals to keep monitoring knowledge and skills acquired throughout their professional career and engage in up-skilling as and when required. The concept of a teaching portfolio for student teachers in pre-service programs helps candidates reflect on their learning and growth. This is often a dynamic process as is the candidate's professional growth. The proliferation and ubiquity of information communication technologies (ICTs) has transformed how we present our professional image and its continuous enhancement. The use of technology makes it easier to make amendments and add to one's portfolio, underpinned by the fundamental pedagogy that drove paper-based portfolios. Gerbic, Lewis, and Northover (2009) aptly describe ePortfolio as a combination of a pedagogy and technology. Moreover, using technology affords "enhancement of portfolio through archiving, linking/thinking, storytelling, collaboration and publishing" (Barrett, 2005, p.5). Therefore, it is not surprising that the physical portfolio is being replaced with virtual portfolio.

An electronic portfolio (e-Portfolio or e-portfolio or ePortfolio) is a digital collection of artefacts that provide evidence of knowledge and skills gained over a length of time and reflect the learning journey of the individual who owns it. Hallam et al (2008) examined various definitions of ePortfolio highlighting that each definition uses the term ePortfolio itself in a number of different ways. Which term should be applied is dependent on its use in a specific scenario, for example,

...early education providers utilise terms such as 'digital portfolios', 'digital storytelling' and 'digital learning portfolios'. Higher education uses 'electronic portfolios', 'e-portfolios', 'webfolio' and 'efolio'. In other contexts (for example, a corporate or business environment) these electronic tools may be referred to as 'performance management tools', 'career management tools', and 'personal development records' etc. (p. 1)

Thus the definition of ePortfolio would also be dependent on that specific scenario itself. Ward and Grant (2007) provide a number of interpretations of the term ePortfolio. Based on previous studies (Boutsia, 2012; Hallam *et al*, 2008; Ward & Grant, 2007), we share some interpretations of the term relevant in our context:

An ePortfolio created by an individual can serve as:

- ➤ a virtual repository for artefacts assimilated at the completion of a project/study.
- ➤ a virtual repository for thoughts, ideas, inquiry, plan and work-in-progress.
- ➤ a means of accessing personal information perhaps held in distribute databases.
- > a means to showcase knowledge, skills and achievements.
- > a means of collecting and selecting assessment evidence against specified

standards/rubrics.

- > a means of sharing and collaborating with others.
- ➤ a guidance tool to support review and choice.

The aforementioned discussion enables us to understand how ePortfolio can act as a product or process (Barrett, 2005). The product/process distinction is important as we plan to engage students with this learning technology. The Joint Information Systems Committee, commonly referred to as JISC (2008), reaffirms Barrett's assertion and, in fact, goes a step further to describe how the "process" of creating ePortfolio results in the "product": "An e-portfolio is the product, created by the learner, a collection of digital artefacts articulating experiences, achievements" and then "Behind any product, or presentation, lie rich and complex processes of planning, synthesising, sharing, discussing, reflecting, giving, receiving and responding to feedback" (p. 6). The JISC article argues that processes are as important as the product. Even though the product might be the point of assessment, it is then important to ensure that the students are provided assistance and ample opportunity for interaction during the process.

In the Pacific, the concept of ePortfolio has been around for nearly a decade in higher education and it is now slowly beginning to appear in the conversations at school level. As evident from the interpretation of the term, ePortfolio can be used in a variety of ways for a myriad purposes. It is imperative that, before implementing ePortfolio in an educational institution, the institution has conducted a thorough consultation on the purpose of ePortfolio and the type of ePortfolio it will implement.

The Purpose of ePortfolio and its Ripple Effect

Educational theories and frameworks underpin learning and teaching strategies. Depending on how the teacher wants to engage their students helps determine the focus of integrating ePortfolio in the course. Therefore, Vygotsky's socio-cultural constructivism (1978) or Papert's constructionism (1980) or Siemen's connectivism (2005) or Lave and Wenger's (1991) community of practice (or any other that a teacher would consider useful) could drive the integration of ePortfolio. There could be cases where a bricolage of theories and frameworks underpin the use of ePortfolio and guide its purpose. According to Rhodes (2018, p. 87),

ePortfolios serve a purpose of helping, in actively inviting, learners to create (a) their own identities as learners and as people, (b) their own agency as an active influencer and creator of learning, and (c) as a person who is an educated participant in creating not only their own world but the global environment they share.

This highlights the power of ePortfolio pedagogy in the much-needed pedagogical shift, whereby the teachers will move from being *sage on the stage* to *guide by the side*. This will enhance learner autonomy and help higher education prepare lifelong learners. However, it would be crucial to lay the groundwork so that the purpose of ePortfolio is clear. The purpose of ePortfolio can vary depending on the user, from learning portfolio to assessment (presentation/showcase) portfolios or showcasing, to personal/professional development ePortfolios or any other purpose such as specific project work (Figure 1).



Figure 1. Different purposes of ePortfolio

It is important that the expectation for setting up ePortfolio is established first. In the case of a student, the teacher must provide guidelines explaining the purpose and a rubric to establish what is expected from the student. In the case of a professional, the individual can work closely with the staff development unit, or its equivalent, to help understand the potential of ePortfolio. In both cases, the ePortfolio creator will need to work closely with the teacher/professional development unit to evaluate ePortfolio as a systematic representation of individual's achievements. The whole exercise of setting up ePortfolio will have ripple effects for all those associated with this exercise. We will now examine the process of setting up ePortfolio and its effects.

The process of selecting artefacts for submission into ePortfolio involves reflection and learning/evaluation. In case of a student, the student creates a portfolio by reflecting on their assignments and learning activities or tasks throughout the course, which enhances their learning as well as involving a self-evaluation process. Hancock (as cited in Dung & Ha, 2019) highlights that the process of curating artefacts for ePortfolio demonstrates how much a learner has learned in a particular course/project. The curated artefacts can be a combination of text and multimedia material. These can be reports, individual and group projects, individual contributions in a group project to demonstrate one's contribution to the group project, creative writing (poems, stories, essays etc.) in a variety of formats, ranging from a simple word document to audio clips, videos, apps etc. Depending on the criteria for ePortfolio, set by the teacher, the student can engage in this exercise on their own or with the teacher. In either case, we see that a student is not a passive learner but an active one. However, depending on the teaching context, a teacher might have to

play an active role in enabling the learner to reflect not only on their learning artifact and its assimilation as per the ePortfolio rubric but also engage them in self-assessment of their work. A combination of such strategies will assist with enhancing student autonomy. Based on the students' ePortfolio, the ePortfolio informs teachers and it works as an effective tool for reviewing instructional strategies.

On the other hand, a professional creates an ePortfolio with evidence of achievement throughout one's professional career. This provides the professional as well as that person's supervisor/potential employer, an opportunity to evaluate credentials and achievements. The ePortfolio can be an effective tool for professionals to critically evaluate their skills and achievements and design their own professional development pathway to improve themselves. It is thus a tool for constant reflection for action with the ultimate aim of becoming better in their domain of expertise.

"Personal reflection on one's work or philosophies is a key element in many electronic portfolios" (Drury, 2006, p. 1), both for students or professionals. Whether the ePortfolio is effective or not, it affords opportunities for metacognition. This means that a critical evaluation of self will assist individuals to set up their benchmarks and goals. Slepcevic- Zach & Stock (2018) highlighted the use of ePortfolio for reflection, self-reflection and competency development. Thus, all teachers need to ensure that they engage their students in the process of thinking and reflection, such that they can develop lifelong skills, such as metacognition.

According to Paulson and Paulson (as cited in Barrett, 2005), most portfolios fall under two distinct paradigms - namely positivist and constructivist. They argue that the conflicting nature of these paradigms make it challenging for the tool providers to meet the diverse requirements in one single product. They (as cited in Barrett, 2005) highlight the tension between two approaches:

"The two paradigms produce portfolio activities that are entirely different...The positivist approach puts a premium on the selection of items that reflect outside standards and interests...The constructivist approach puts a premium on the selection of items that reflect learning from the student's perspective." (p.8)

Barrett and Carney (2005) realised that the potential of ePortfolios to serve for both high- stakes assessments and deep student learning can present a conflicting scenario. They, therefore argue for a "balanced system" that is underpinned by the "values of portfolios for self-assessment and life-long learning" (p.1). Barrett (2009) extends this argument further, to scenarios where ePortfolios are used as workspace and in other cases as a showcase, which also are conflicting and thus require a balancing act (see Figure 2). It explains "how to balance the process and product to enhance learner engagement with ePortfolio development" (Barrett, 2009, p.1). In summing up what ePortfolio can offer, perhaps it would be best to re-assert that ePortfolio will offer maximum benefits if we treat it as process and continue to refine the end product. However, our role as teachers is crucial in setting the guidelines and perhaps even experiment to see how the two competing paradigms can be mixed.

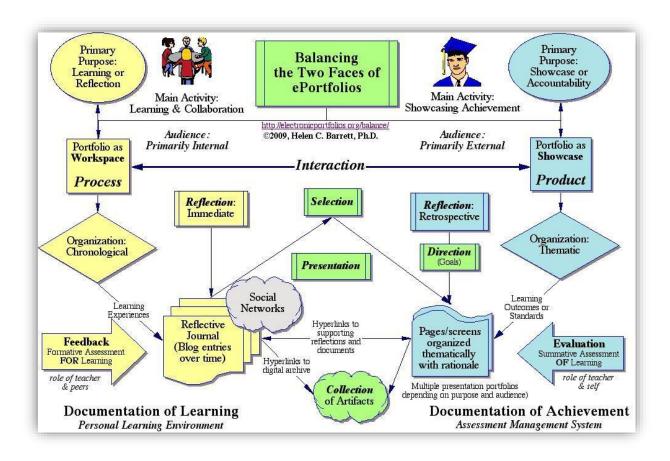


Figure 2. Balancing the Two Faces of ePortfolio (Source: Barrett, 2009; Reproduced with Permission)

Based on their purpose, ePortfolios have been classified by various experts. Baumgartner made an extensive effort in developing a taxonomy for ePortfolio, to provide "a better understanding of how to successfully integrate this software tool into (higher) education" and believed that "a tidy and consistent classification should be useful in choosing the software which fits best the intended didactical purpose (2009, p. 13). He classified ePortfolio into three categories: *Reflection Portfolio*, *Development Portfolio* and *Presentation Portfolio* (see Table 1).

Table 1 Taxonomy (Source: Baumgartner, 2009; Reproduced with Permission)

Type of portfolio	Activity							Artefact					
	Selecting	Assessing	Organizing	Planning	Presenting	Networking	Reflecting	Example	Assessment	Biography	Document	Experience	Reflection
Learning Product Portfolio		X		X			X	X	X			X	X
Development portfolio	X	X	X	X		X	X	X	X	X	X	X	X
Presentation portfolio	X	X	X		X			X		X	X		

The systematic taxonomy proposed by Baumgartner is useful for identifying software tools that exhibit the qualities of each type of portfolio, for selecting and implementing one that suits the individual or organization. In their study, Himpsl and Baumgartner (2009) evaluated ePortfolio software with the view to providing guidance for higher education institutions who want to implement it. They used the method of "Qualitative Weight and Sum (QWS)", among others that were found in the literature. The choice of any method has its advantages and disadvantages but QWS was chosen because it eliminated the disadvantages of numerical calculations. The QWS method was used in an iterative process against a set of criteria. A panel of experts were engaged to assess the importance of each criteria by assigning a weighting. Less important criteria were deleted. This process was repeated by assessing the software product and its functions. On the basis of sound assumptions about minimum requirements, a final list of evaluation criteria was produced.

On the other hand, Dung and Ha (2019, p. 442) based their classification on the purpose of the ePortfolio, which determines what content will go in it and influences its organization. According to Dung and Ha, four commonly used ePortfolio are: *Evaluative*, *Working*, *Showcase* and *Archival*. Considering that Dung and Ha's classification focused on its use for students, it is therefore of interest for our discussion in this chapter:

- ➤ Evaluative: As the name suggests the purpose of this ePortfolio is to evaluate student's progress with respect to program outcomes. Teachers select a variety of artefacts (complete or in-progress), such as student's reading/writing logs, test data or anecdotal records to conduct a formative or summative evaluation. This type assists in evaluating students' strengths and areas of need.
- ➤ Working: Considering this is a work-in-progress ePortfolio, it provides an opportunity

to monitor students' thoughts, ideas, growth, and accomplishments. The teacher and student work together throughout to select artefacts, assess and evaluate through a formative evaluation process.

- > Showcase: As evident from the name, this type helps the student showcase the best artefacts from their learning journey. The teacher and student collaborate from the beginning, that is, selection to evaluation, which is summative.
- ➤ Archival: This ePortfolio acts as an archive of students' achievements, which can be assessed to evaluate student's growth and accomplishments. In addition to artefacts by students, it is a good idea to include teachers' comments and marked assessments to provide a holistic student profile. While this may appear as a summative evaluation, the student can continue to work on it in subsequent years.

Whatever the purpose of ePortfolio, as long as it is well established and communicated to the students, it should enhance the learning journey of all students.

ePortfolio tools, technologies and/or platforms

There is a varied notion on what can function as a tool/platform to create an ePortfolio. The ePortfolios are seen to be a fair way of assessing students or an individual, as it gives them time to reflect, and reflect on their reflection, as they design their portfolio and present their learning journey. Another important point is the theoretical underpinning for the ePortfolio exercise. The theoretical underpinning, as discussed earlier, provides the purpose for the ePortfolio. Thus, the purpose, versatility/inter-operability, and the ease of use of these tools and technologies/platform are the three most critical features for its adoption, specifically for higher education students and teachers in Pacific Island Countries.

The advent of Web 2.0 applications has seen a marked increase in the evolution of paper-based portfolios to electronic portfolios. There are numerous ePortfolio software providers, each focusing on a specific clientele, such as education, while others look at the corporate market. Sometimes, it can be hard to choose. The choice of a platform can be influenced by the cost involved, training availability, ease of use, and licensing fees or open sources. The range of ePortfolio products can be categorized as

- Proprietary platform
- Open source platform
- Combined platform

The proprietary platform generally comes with a host server with offsite and onsite support. These systems need to be paid for on the basis of:

- Number of users
- Storage space
- Level of customization, but limited options
- Training needs of users and trainers
- Add on features required

Some examples of proprietary platforms are *Blackboard*, *Campus Labs*, *Digication*, *Desire2Learn* and *Watermark*. On the other hand, open source platforms are available for organizations to use and customize at will. The source code is developed by the source community and made available to

developers to customize and use. Some examples of open source platform are *Moodle, Mahara, Sakai* and *WordPress*. We will now look at ePortfolio options that are available and how institutions and organisations are integrating these into their education systems. A list of possible ePortfolio options is provided in Appendix 1.

At this juncture, it might be useful to reiterate that there is a need to establish the purpose first (see Figure 1), lest we get caught in the paradigm conflict as highlighted earlier. Based on the purpose, the user can then decide which type of option would be the best. Learners in the Pacific do not have enough technical skills and resources so often spend hours learning to use different features of an ePortfolio. Therefore, the most important aspect for learners in our context is the need for a simple system, which is user-friendly. Experts have deliberated upon different types of tools, technologies and/or platforms suitable for ePortfolio creation (Barrett, 2005; Cambridge, 2008; Chen, 2015; EPAC, 2015; Stefani, Mason, & Pegler, 2007).

Mahara: A Case Study at the University of the South Pacific

In its efforts to promote technology-enabled learning, ePortfolios have managed to find a place in the University of the South Pacific's (USP) learning and teaching strategies. The first attempt to investigate the use of ePortfolio was made by the *Centre for Flexible and Distance Learning* in 2007 (Prasad, Tuisawau, Yusuf, & Bhartu, 2010). Following a series of consultations, USP implemented *Mahara* as the university-wide ePortfolio in 2010. After a comparison of *Mahara* with *Elgg* and *MyStuff* based on 69 evaluation criteria by Bruce Landon (2006), *Mahara* emerged as the winner for USP. Highlighting the strengths, Prasad, Tuisawau, Yusuf and Bhartu (2010) reported *Mahara*:

- ➤ Offers feature-rich digital portfolios to students (caters for every file type).
- > Enables reflection on uploaded artifacts.
- ➤ Integrates seamlessly with Moodle.
- ➤ Enables one to devise a Skills Matrix (to facilitate communication of mastery of program outcomes).
- ➤ Enables students and staff to assign and control access (allows for students to display their portfolio content and achievements to relevant stakeholders such as prospective employers).
- ➤ Is easy to navigate (intuitive).
- ➤ Is easy to use to build e-portfolios (Ajax instead of needing to play with html or CSS).
- ➤ Is building its capabilities for Archival/pack-up/download/transfer portfolio artifacts.
- > Is supported by a growing and active support community of developers.
- ➤ Is easy to install.
- Allows for the easy use and the copying of templates.
- > Enables the building of different resumes.
- > Supports personal blogs.
- ➤ Supports social networking (has features similar to Facebook example, wall, messaging).

(pp. 6-7)

However, Prasad *et al*, (2010) also reported on some features of *Mahara* that required improvement. The ePortfolio working group at USP has been instrumental in improving and upgrading Mahara in its effort to provide best the possible service to its users at the university. This is evident in the different ways the ePortfolio working group has reached out to the user with

Mahara:

- ➤ Face-to-face training as and when required to the teaching staff.
- ➤ Mahara user manual, which has now been replaced with an online training module on Moodle (appendix 2) for the teaching staff.
- > Student and staff guide for Mahara.
- Ensure Mahara is up-to-date.

Since its inception, Mahara has been integrated into a few courses at USP. The introduction of ePortfolio in a generic course on *Communication and Information Literacy* (UU100) at USP provides all first year students an opportunity to get acquainted with this tool, useful for lifelong learning. This is in line with the original plan of the Mahara implementation project, where UU100 was targeted to create a unit on ePortfolio and roll it out in semester 2, 2010 (Prasad *et al.*, 2010). Thus, this first year course gets all students at USP started with Mahara, which they can then continue to use on their own. In order to get students to embrace the concept of sharing and collaboration, as well as demonstrating skills and competencies learnt, it is crucial that their teachers are also familiar with these concepts. The USP has programs in teacher education at school level and tertiary level.

The Post Graduate Certificate in Tertiary Teaching (PGCTT) program engages participants with an ePortfolio activity to showcase their learning journey, as well as utilise it as a space for metacognition. The PGCTT candidates are required to reflect on their learning journey and map the skills and knowledge acquired against their institutions' quality of teaching criteria. A link to Mahara is provided in the two courses in PGCTT (see Appendix 3). The candidates are required to join the group created for all PGCTT candidates and share their pages with their peers and the course coordinator. The ePortfolio is the capstone exit profile at the end of the program (see Appendix 4). Once they complete the program they can export the content of their portfolio to host it in the platform of their choice. It is hoped that in doing so they can keep building on it post-PGCTT and keep a track of their professional development activities. In doing so, they can also plan ahead for the areas in which they require professional development. However, Mahara has had its fair share of challenges, as it migrated from one version to another in 2018, which led to losing the old members from the PGCTT group. The team continues to work on retrieving the membership at the time of writing this chapter. A reflection from the PGCTT course (ED401) provides some insight into the integration of ePortfolio in the program.

Reflection on integration of ePortfolio in ED401 (Semester 1, 2019) by PGCTT candidate and co-author, Gurmeet Singh:

The course ED401 is an online course which is part of the Postgraduate in Tertiary Teaching programme. One of the assessment task is for students to prepare an eportfolio on Mahara platform.

The use of eportfolio in teacher training programmes is well documented in literature whereby an eportfolio is more than a mere collection of work done during the term of study. The series of reflections demonstrates evidence of our learning and the journey over the 14 weeks of study (Appendix 5 a-b: Two screenshots of my ePortfolio on Mahara).

While eportfolio is used as an assessment tool in this course, the development of eportfolio has allowed me to regulate my own learning by being an active participant. I was able to gauge my level of understanding and contribution in weekly forums and make improvements so that I could have a well-researched artefact for accumulation in the eportfolio.

The following attributes that were embedded in the course allowed me to successfully develop my eportfolio:

We were provided with the information on eportfolio right from the beginning of the course.

We were given clear guidelines on the purpose, criteria for development (using the Quality of Teaching (QoT) for our organization) and evaluation (rubric).

Timelines for sharing with the course coordinator

Resources such as website toolkits and videos for understanding the technical aspects of preparing the eportfolio.

Providing collaboration among peers by sharing eportfolios provided a motivation to prepare the eportfolio of a comparable quality.

Mahara was easy to use and had features to allow me to add various type of content, files, media and flexibility to organize the pages to suit the content type.

Furthermore, the preparation of eportfolio has provided me with a tool to support lifelong learning which I can also use in the courses I teach in the future.

Similarly, the Bachelor of Education programme also integrated Mahara into their practicum course (ED300) such that student teachers could present their work virtually. The teaching team is in the process of reconfiguring the use of Mahara for this particular course. Overall, Mahara implementation in USP is definitely a useful addition to the array of learning technologies. With student teachers (pre-service and in-service) and tertiary teacher education in the use of Mahara, it is hoped that more school and tertiary teachers will integrate it into their teaching as well as use it for showcasing their own professional development.

Opportunities and Challenges

The hours spent working on developing one's personal e-space can be both challenging and rewarding. A little over a decade ago, ePortfolio use in the Australian higher education sector was still "patchy" (Hallam & Creagh, 2010), and end user perceptions in New Zealand were focused on the challenges in using the ePortfolio software (Gerbic et al, 2009). Today as a learning and assessment tool in higher education institutions and for senior high school students in the established economies of the world, the multi-faceted nature of ePortfolios have been incorporated into a diverse range of disciplines from counselling to nursing and engineering (Chang, Chou, & Liang, 2018; Chang, Lee, Mills, & Hsieh, 2019). For the average older IT user in the Pacific Islands the scales are sometimes tipped towards the difficult end, with users experiencing what has been termed by Wakimoto and Lewis (2014) as "technology anxiety". For younger Pacific Islanders, the balance has shifted considerably in the last two decades. The availability of smartphones, increases in internet connectivity, and IT-centric higher education have driven the evolution of the Pacific Island information technology end user. As a consequence, we are experiencing a more ITsavvy Pacific Island student, one who is more heavily reliant on the use of eLearning tools and for whom higher education would be a mire too difficult to traverse without a technological support system.

At the University of the South Pacific (USP), the teaching staff, in partnership with education technologists at the *Center for Flexible Learning* (CFL) have included learning tools for ePortfolio creation and use in their course designs at both an undergraduate and postgraduate levels. Students enrolled in any degree programme learn how to create an ePortfolio in UU100, a university-wide first-year level course, using Mahara within the university's Moodle learning systems platform. Mahara is an open source ePortfolio platform with social networking functionality (Brown, Anderson, Simpson, & S2007), that was created by and for the New Zealand higher education system. The creation of Mahara represented the gradual change in individual perceptions of ePortfolio use in New Zealand higher education, by both students and faculty (Gerbic *et al*, 2009; Lewis & Gerbic, 2012) - an evolution of user perception witnessed elsewhere in global higher education (Wilson 2018; Deneen, Brown, & Carless, 2018). A comparative study of Mahara and Elgg, indicated that Mahara's functionality was viewed as superior by users (Balaban & Bubas, 2010).

The use of ePortfolio is a pivotal instrument, implemented in USP in UU100 and several higher level degree courses, as both a learning and assessment instrument and a means for seeking external opportunities, such as scholarships for further studies and employment. However, it is the degree to which an ePortfolio can be wielded as a tool within a Pacific Island graduates' cache of skills and attributes that is both a challenge and an opportunity for advancement for USP students and academics alike. As demonstrated for other institutions (Douglas, Peecksen, Rogers & Simmons, 2019; Wakimoto & Lewis, 2019), students at USP lack motivation to use their ePortfolios beyond

those few courses and, as a result, ePortfolio technology skill levels decline. In countries where social networking creates concrete employment opportunities, such as Australia and the United States, the ePortfolio has evolved from an implement used to garner access into higher education institutions, into a platform for self-expression in a global digital arena (Hallam and Creagh, 2010; Cordie, Sailors, Barlow & Kush, 2019). In Asia, ePortfolio development is advanced and is utilized as tool for national level programmes, such as the Malaysian Skills Certification (MSC) system for vocational education (Rahim, bin Yunus, Marian, Baser & Ali, 2019). Within the MSC system, ePortfolios are used for effective learning, achievement recognition, and assessment of skills gained. It is this chameleon-like potential of an ePortfolio, that has been somewhat underutilized by Pacific Island higher education students and faculty alike.

Nevertheless, there is hope that with the rapid advances in information technology, experienced in the developing island states of the Pacific, this situation will change and we will inevitably see the application of ePortfolios on the same level as elsewhere in the developed world. In ecology, the *n*-dimensional hyper volume that an individual inhabits, comprising all the available resources and conditions that an individual utilizes to survive, is called a niche. Niches are unique to an individual and are often loosely described as the lifestyle of an organism. In cyberspace, one's niche can be encapsulated by their ePortfolio. We can think of one's ePortfolio as an e-niche, not limited by physical restraints or intangible interactions with other individuals in the global digital community. A cyber space where self-expression can become one's truest identity and where social media connections on the various platforms that exist now and that will abound in the future, will enable self-marketing on a scale previously unknown.

The Pacific stands on the threshold of a revolution in cyber space usage. Within this region there are a multitude of diverse and vibrant cultures that teem with colour and sound. The vast possibilities for Pacific island student ePortfolio use, to showcase audio-visual presentations unique to the sights and sounds of Pacific people, present an opportunity to exploit e-niches imbued with a digital Pacific island signature. The issue will then be to ensure that the creative potential of ePortfolios is utilized in a manner that is tempered only by appropriate digital ethics, as described by Wilson, Slade, Kirby, Downer, Fisher & Nuessler, (2018). It will then become a challenge for educators at the University of the South Pacific to allow for creative scope within their students' individual areas of interest, bounded by codes of practice within a tailored system that is thoroughly researched and applied. Major constructs that could be fashioned for use within this USP-specific knowledge management space should enable reflective learning, assess student competencies, provide a safe repository for learning artifacts, and show case achievements earned using multi-dimensional tools.

Conclusion

EPortfolio usage is slowly picking up momentum in higher education in Pacific Island countries. The purpose of ePortfolio in educational institutions depends on the educator but the overall aim is to ensure that authentic learning takes place through reflection and assessment in a continuous manner. The use of ePortfolio does not have to be either process or product but can be a combination of the two. Eportfolio creation as a process is particularly useful for students during their studies in higher education but also for post graduate studies. The ePortfolio as a product can be useful at different stages of an individual's life. It helps when students in higher education engage in developing their ePortfolio as soon as they enter the program, so that they keep building it up by the time they complete their studies. This ePortfolio as a product is useful to showcase their

knowledge and skills. Acquired during their degree. To potential job providers. Once in the workforce, professionals can continue to build on their ePortfolios and use it as a product at different stages of their professional career, whilst continuing to apply it as a learning tool and a marketing strategy. The 21^{st} century brings on the need for lifelong learning and, having graduated in this century, our graduates will find using ePortfolio beneficial for their professional lives too. Thus, ePortfolio has the potential to provide a life-long and life-wide learning environment where we can continue to create and tell of our lifelong learning journey and personal stories in the way we want to.

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Appendix 1. ePortfolio options (tools, technologies and/or platforms)

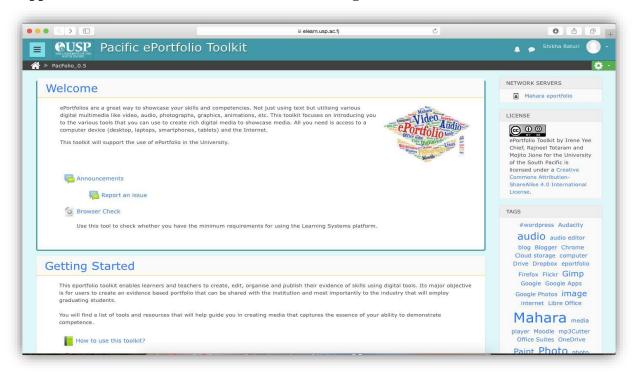
Key to "Type" column	Key to "License" column
E: E-portfolio software	OS: Open Source
L: LMS/CMS with intergrated ePortfolio function	C: Commercials
I: Intergrated systems (CMS with possible portfolio functions)	F: Free to use
O: Other systems	

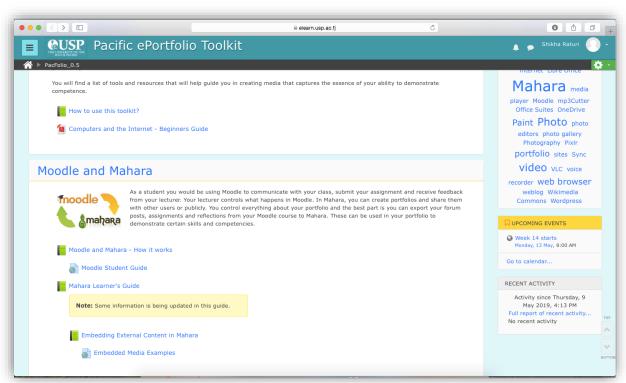
	Product	Provider	Туре	License	URL
1	Blackboard	Blackboard Inc.	L	С	https://www.blackboard.com/platfor ms/learn/products/ blackboard- learn/teaching-and-learning/new-to- learn/content-management.aspx
2	Blackboard help	Blackboard Inc.	L	С	https://help.blackboard.com/
3	Blogger	Blogger	О	F	https://www.blogger.com/about/?r=
4	Campus Labs	Campuslab s	L	С	https://www.campuslabs.com/ https://www.chalkandwire.com/
5	Canvas	Instructure Inc.	I	P	https://www.instructure.com/canvas/ higher- education/platform/products/canvas- lms
6	Carbonmad e	Carbon Made	Е	С	https://carbonmade.com/
7	Desire 2 Learn	D2L Corporation	I	С	https://www.d21.com/
8	Digication	Digication	L	С	https://www.digication.com/
9	Drupal ED	Acquia	I	OS	https://www.drupal.org/
10	Edsurge	Edsurge Inc	I	С	https://www.edsurge.com/higher-ed

11	Elgg	Elgg	О	OS	https://elgg.org/
12	FolioSpace s	Foundation	Е	OS and C	https://www.foliospaces.org/
13	Google Apps	Google	О	F	https://www.google.com/a/help/intl /en/edu/index.html
					[https://www.google.com/sites/over view.html]
14	Instructure	Instructure	I	С	https://www.instructure.com/
		Inc.			[https://portfolium.com/solutions/ep_ortfolios]
15	Ingeniux	Ingeniux Corporation	I	С	https://www.ingeniux.com/
16	Interfolio	Interfolio Inc.	I	С	https://www.interfolio.com/
17	Mahara	eCDF New Zealand	Е	OS	https://mahara.org/
18	Myefolio	myefolio	Е	U	https://myefolio.com/efoliomn
19	Onefile	Onefile Ltd	Е	С	https://www.onefile.co.uk/index.ht ml
20	Pathbrite	Cengage	Е	F	https://pathbrite.com/
21	PebblePad	Pebble Learning Ltd	Е	С	https://www.pebblepad.co.uk/defau lt.aspx
22	Plone	Plone Foundation	I	OS	https://plone.org/
23	Portfoliovil l age	PortfolioVil l age	О	F and C	https://www.portfoliovillage.com/
24	QualsDirect	QualsDirect	Е	С	https://www.quals-direct.co.uk

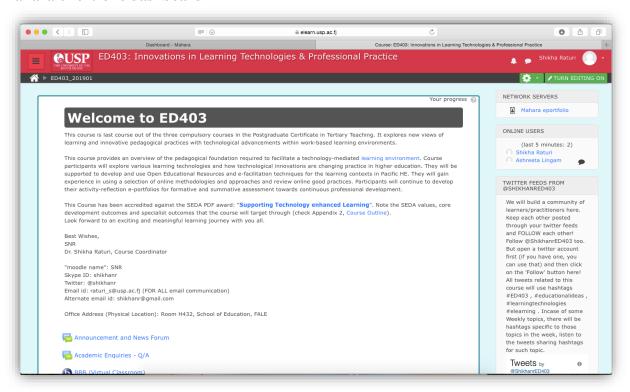
25	RCampus	Reazon Systems Inc	Е	С	https://www.rcampus.com/eportfoli ohomeshellc.cfm
26	Sakai	The Sakai Foundation	L,I	OS	https://www.sakailms.org/
27	Scioware TM	Concord USA Inc.	I	С	https://www.concord- usa.com/scioware.htm
28	Simplicity	Simplicity	О	С	https://www.symplicity.com/reflect ion
29	Watermark	Watermark	L	С	https://www.watermarkinsights.co m/
					[https://www.digitalmeasures.com/]
					[https://www.tk20.com]
					[https://www.taskstream.com/pub/]
					[https://www.livetext.com/]
30	Wordpress	Automatic	О	С	https://wordpress.com/
31	Yola	Yola Inc.	О	С	https://www.yola.com/
32	Zovio	Zovio	О	C	https://www.zovio.com/

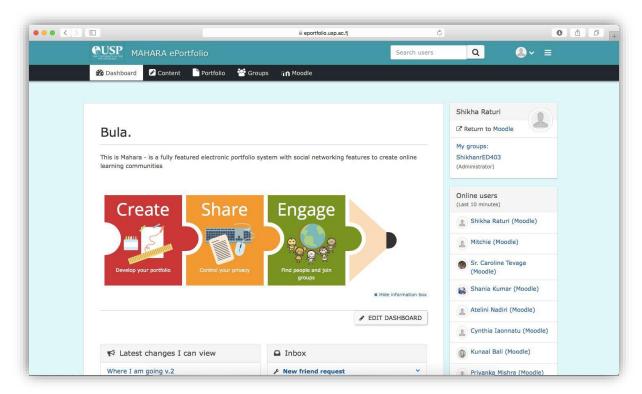
Appendix 2. ePortfolio toolkit with online training content on Mahara



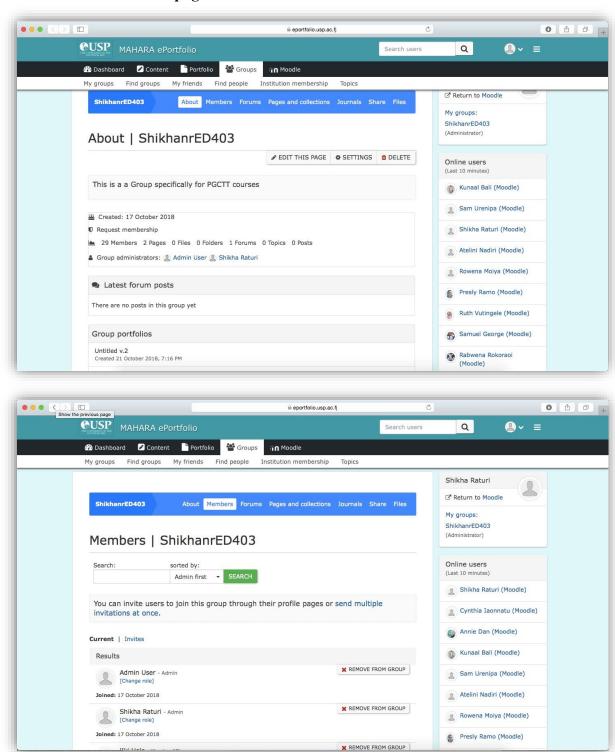


Appendix 3. ED403 course: Link for Mahara ePortfolio in the course Moodle shell and Mahara ePortfolio dashboard

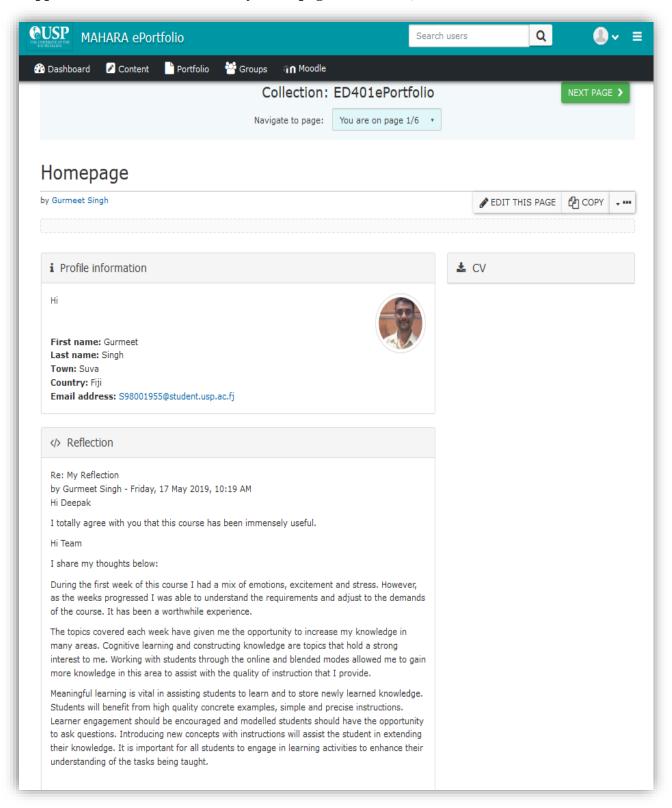




Appendix 4. ED403 course: Mahara ePortfolio group "ShikhanrED403" showing it's "About" and "Members" pages



Appendix 5 a. ED401 Course: My Homepage on Mahara, ePortfolio



Appendix 5 b. Alignment of artefacts from ED403 with the first domain of USP QoT

